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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/524,379

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NXP, B.V.

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SAN JOSE, CA 95131

EXAMINER

KALAM, ABUL

ART UNIT

PAPER NUMBER

2814

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/524,379	<b>Applicant(s)</b> HEESSELS, ADRIANUS CASPAR LEONARDUS	
	<b>Examiner</b> Abul Kalam	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of claims 1-9, in the reply filed on June 5, 2007, is acknowledged. The traversal is on the ground(s) that the process recited in claim 10 would inherently result in the product recited in claim 1 and that the process specially adapted for the manufacture of said product; thus the method is not distinct or different from the claimed device invention. The argument is found persuasive, and thus, the restriction requirement mailed on April 5, 2007, is hereby withdrawn.

### ***Claim Objections***

2. Claims 2-15 are objected to because of the following informalities:

In line 1 of claims 2-9, the limitation of "An integrated circuit," should be amended to recite --The integrated circuit--.

In line 1 of claim 10, the limitation of "an integrated circuit," should be amended to recite --the integrated circuit--.

In line 1 of claims 11-15, the limitation of "A method," should be amended to recite --The method--.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 10, the limitation of “a set of cells, each cell comprising an electrical device having a device parameter with a parameter value which is a function of random parametric variations,” in lines 2-4, is indefinite because the limitations are also recited in claim 1, and it is unclear whether these limitations are referring back to the limitations in claim 1 or are different limitations. For examination purposes, the limitations will be interpreted such that they are the same limitation as those already recited in claim 1. Appropriate correction is required.

Claims 11-15 depend from claim 10, and thus also have the same issue.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-6 and 10-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lofstrom (US 6,161,213)**.

With respect to claim 1, Lofstrom discloses an integrated circuit comprising a set of cells (**46 and 50, Fig. 2**), each cell comprising an electrical device having a device parameter with a parameter value which is a function of random parametric variations, the set of cells comprising:

a first subset of identification cells (**62, Fig. 3**); and

a second subset of cells **(50, Fig. 8)** for generating an identification code **(FIG. 2)** by measuring the parameter values of the identification cells **(62)** wherein the identification cells have first random parametric variations and the cells of the second subset **(50, Fig. 8)** have second random parametric variations **(col. 4: Ins. 10-21, col. 5: Ins. 46-51)**.

Thus, Lofstrom teaches all the limitations of the claim with the exception of explicitly disclosing: wherein the first random parametric variations being larger than the second random parametric variations.

However, Lofstrom does disclose that increasing the random parametric variations of the identification cells provides robustness to the integrated circuit identification (ICID) device **(col. 7: Ins. 10-12)**.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the identification cells with random parametric variations that are larger than the random parametric variations of the second subset of cells used for generating an identification code, because increasing the parametric variations of the identification cells provides robustness **(col. 7: Ins. 10-12)**, and thus, increases reliability to the device.

With respect to claim 2, Lofstrom teaches wherein the first random parametric variations cause random differences among the parameter values of the identification cells **(col. 4: Ins. 58-67, col. 5: Ins. 1-8)**, the random differences each having an absolute value, the absolute values having an average value; and the second random parametric variations cause an offset in the parameter values of the identification cells

(**col. 7: Ins. 25-43**), the offset having an absolute value, the average value being larger than the absolute value of the offset.

With respect to claim 3, Lofstrom teaches wherein the identification cells (**62, Figs. 3 and 4**) each contain only one electrical device (**col. 15: Ins. 38-40**).

With respect to claim 4, Lofstrom teaches wherein the random parametric variations comprise a random distribution of doping atoms in at least a part of the electrical device (**Fig. 6; col. 6: Ins. 44-59**).

With respect to claim 5, Lofstrom teaches wherein the electrical device comprises a metal oxide semiconductor field effect transistor (**84, Fig. 6**) comprising a source (**88**), a drain (**90**), a gate (**86**), and a channel ("**under gate oxide**," **col. 6: Ins. 50-51**), which is situated between the source, the drain and the gate, the channel being electrically insulated from the gate by an oxide, the part of the electrical device having the random distribution of doping atoms comprising the channel (**col. 6: Ins. 44-59, col. 7: Ins. 14-15**).

With respect to claim 6, Lofstrom wherein the electrical device comprises an ohmic resistor having a resistance value, which is a function of the random parametric variations (**col. 15: Ins. 40-42**).

With respect to claim 10, Lofstrom teaches wherein the integrated circuit comprises a substrate (**92, Fig. 6**) and a set of cells (**62, Fig. 3**), each cell comprising an electrical device (**Fig. 4**) having a device parameter with a parameter value which is a function of random parametric variations, the substrate comprising a first portion and a second portion (**Fig. 6; col. 44-59**).

Thus, Lofstrom teaches all the limitations of the claim with the exception of explicitly disclosing: a step which causes the cells to have the random parametric variations, wherein means for increasing the random parametric variations, in at least a part of the first portion with respect to the random parametric variations in the second portion are applied during at least part of the execution of said step. However, note that such a limitation is drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

With respect to claim 11, the limitation of “wherein during at least a part of the step of applying the means for increasing the random parametric variations the second portion is covered by a first mask which at least partly prevents an increase of the random parametric variations in the second portion,” is also drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

With respect to claim 12, the limitation of “wherein the step causing random parametric variations comprises a sub-step causing random parametric variations in at least a part of the second portion while the first portion is covered by a second mask which at least partly prevents introducing the random parametric variations in the first portion during the sub-step,” is also drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

With respect to claim 13, the limitation of “wherein the step causing the random parametric variations comprises implanting doping atoms,” is also drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

With respect to claim 14, the limitation of “wherein the means for increasing the random parametric variations comprise objects randomly distributed over at least a part of the first portion, the objects at least partly preventing doping atoms from being implanted,” is also drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

With respect to claim 14, the limitation of “wherein at least a part of the doping atoms carry a charge when they are implanted and a deflection unit randomly deflecting the charged doping atoms by applying a random deflection signal is used as the means for increasing the random parametric variations,” is also drawn to a product-by-process, and therefore given no patentable weight (MPEP 2113).

Initially, and with respect to claims 10-15, note that a “product by process” claim is directed to the product per se, no matter how actually made. *In re Thorpe et al.*, 227 USPQ 964, (CAFC, 1985) and the related case law cited therein which makes it clear that it is the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not. As stated in Thorpe:

Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935);

**Note that Applicant has burden of proof in such cases** as the above case law makes it clear.



5. **Claims 7-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lofstrom (US 6,161,213)** in view of **Bohr et al. (US 6,337,507)**.

With respect to claim 7, Lofstrom teaches all the limitations of the claim, as set forth above in claim 6, with the exception of explicitly disclosing wherein the ohmic resistor comprises a silicide material and has a shape, the random parametric variations comprising a random distribution of shapes.

However, Bohr teaches an ohmic resistor (**polysilicon layer 105, FIG. 2A**), comprising a silicide material (**104**) which has a shape (**FIG. 2A; col. 3, lines 6-20**), and the random parametric variations comprising a random distribution of shapes (**col. 3: Ins. 58-67**).

With respect to claims 8 and 9, Bohr teaches that the polysilicon resistors (**205, FIG. 2B**) may be doped with p-type or n-type, in order to adjust the resistance and form p-n junctions (**col. 3: Ins. 41-50**). Thus, it is implicit that during the manufacturing process of the polysilicon resistors, insulating impurities are diffused into the resistors, and thereby electrically insulate parts of the ohmic resistors (**FIG. 2B**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Bohr, with the device of Lofstrom, for the purpose of increasing the random parametric variations of the resistors by forming silicides on the resistors or introducing insulating impurities into the resistors, and thereby, improving the robustness and reliability of the cell identification circuit.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is 571-272-8346. The examiner can normally be reached on Monday - Friday, 9 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./

/Thao X Le/  
Primary Examiner, Art Unit 2814